

ELECTRICAL CONSTRUCTION NOTES

- THE GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS SHALL BE CONSIDERED AS PART OF THE SPECIFICATION.
- FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS TO PERFORM ELECTRICAL WORK SHOWN, NOTED OR SCHEDULED FOR A COMPLETE AND FINISHED INSTALLATION.
 - ALL MATERIALS AND EQUIPMENT SHALL BE COMMERCIAL AND SHALL CARRY A U.L. LABEL.
 - MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UNDERWRITERS LABORATORIES LIST OF APPROVED ITEMS AND SHALL MEET REQUIREMENTS OF ASTM, IEEE, 2010 NEC, NEMA, AND OTHER RECOGNIZED STANDARDS AND SHALL BE SIZED IN CONFORMITY WITH REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND OTHER APPLICABLE CODES, WHICHEVER ARE MORE STRINGENT.
- THE WORD "PROVIDE" AS USED HEREIN MEANS TO FURNISH AND INSTALL COMPLETE.
- WIRE SHALL BE SINGLE CONDUCTOR COPPER WITH 600 VOLT INSULATION. ALUMINUM CONDUCTORS ARE NOT PERMITTED. #12 AND SMALLER SHALL BE SOLID. #10 AND LARGER SHALL BE STRANDED. MINIMUM WIRE SIZE SHALL BE #12. ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE BROUGHT TO THE SITE IN UNBROKEN PACKAGES. ALL WIRING OF ANY TYPE SHALL BE IN CONDUIT.
 - GENERAL WIRING SHALL BE THWN OR THHN.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES.
- ABOVE GRADE WIRE CONNECTORS SHALL BE BY "SCOTCHLOCK" OR EQUAL FOR #8 OR SMALLER AND T4B "LOCK-TITE" FOR #6 AND LARGER.
- ALL WORK TO BE IN ACCORDANCE WITH THE 2010 CEC (2009 NEC) AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES.
- UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 OR 80 PVC BURIED A MINIMUM OF 24".
- THIS CONTRACTOR SHALL DO ALL CUTTING, CHASING OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS DIVISION. ANY CUTTING SHALL HAVE PRIOR APPROVAL OF THE OWNER.
- PROVIDE SAFETY AND DISCONNECT SWITCHES. SHALL BE FUSED OR NON-FUSED AS CALLED FOR ON DRAWINGS AND AS REQUIRED BY CODE. SWITCHES SHALL BE HEAVY DUTY, LOAD AND HORSEPOWER RATED AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC OR EQUAL.
- JUNCTION, PULL BOXES AND COVERS WITHIN BUILDING SHALL BE GALVANIZED STEEL, CODE GAUGE SIZE AND ACCESSIBLE.
- ELECTRICAL CONTRACTOR SHALL RECORD ALL FIELD CHANGES IN HIS WORK AS THE JOB PROGRESSES, AND UPON COMPLETION SHALL TURN OVER TO THE OWNER A "RECORD" SET OF PRINTS SHOWING THE CHANGES.
- ALL ELECTRIC WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING MAINTAINING AND REPAIRING. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL, SUCH AS CHANNELS, RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK AND SHALL BE FASTENED TO STEEL, CONCRETE OR MASONRY, BUT NOT TO PIPING. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUITS SHALL BE IN STRAIGHT LINES PARALLEL WITH OR AT RIGHT ANGLES TO COLUMN LINES OR BEAMS AND SEPARATED AT LEAST 3" FROM WATER LINES WHEREVER THEY RUN ALONGSIDE OR ACROSS SUCH LINES. CONDUCTORS SHALL BE ON CONDUIT, DUCTS, OR APPROVED RACEWAYS.
- ALL 90 DEGREE ELBOWS TO BE FACTORY MADE BENDS.
- PRIVATE LIGHTING SYSTEM SHALL NOT BE JOINT TRENCH WITH PUBLIC UTILITY SYSTEM.
- CONTRACTOR TO MAINTAIN PROPER SEPARATION AS REQUIRED BY THE UTILITY COMPANIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR ANY AND ALL UTILITY AND CITY INSPECTIONS.
- ALL GROUND CONDUCTORS SHALL BE SPLICED TOGETHER WITH APPROVED CONNECTOR AT PULL BOXES AND CONNECTED TO GROUND LUG INSIDE POLE.
- SEE IMPROVEMENT PLANS FOR SITE, SEWER AND WATER (ETC.) IMPROVEMENTS PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR SHALL CONTACT "DIG ALERT" FOR MARK-OUT PRIOR TO TRENCHING AS REQUIRED.
- THESE PLANS ARE SCHEMATIC AND ARE FOR THE PURPOSE OF SHOWING HOW TO CONNECT THE ELECTRICAL SYSTEM. WHILE THE DRAWING IS AT ACTUAL SCALE, THE SYMBOLS REFERENCED ARE NOT, AND MAY APPEAR TO SHOW THE EQUIPMENT IN PLACES NOT INTENDED. THE CONTRACTOR IS TO FIELD VERIFY ALL UTILITY COMPANY SERVICE POINTS/METER LOCATIONS, POLES, PULL BOXES/BUILDING LIGHT LOCATIONS, SERVICE EQUIPMENT LOCATIONS AND OTHER ELECTRICAL APPURTENANCES PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES ARE TO BE ADDRESSED TO THE CLIENT BY MEANS OF A "REQUEST FOR INFORMATION" (RFI). CONTRACTOR IS TO VERIFY ALL LIGHT LOCATIONS WITH THE CITY PRIOR TO START OF CONSTRUCTION AND DURING STAKING. REFER TO LIGHT STANDARD DETAIL FOR STANDARDS.
- CONTRACTOR SHALL CONTACT "DIG ALERT" FOR MARK-OUT PRIOR TO TRENCHING AS REQUIRED.
- PANEL CIRCUIT DIRECTORY TO COMPLY WITH SECTION 408.4, CEC.
- NATIVE SOIL SHALL BE ACCEPTABLE FOR TRENCH BACK FILL PROVIDED THAT THE FILL MATERIAL USED SHALL PASS THROUGH A 1" SIEVE (CITY STANDARDS). SEE NOTES & DETAIL VEL-3.
- CONTRACTOR SHALL LABEL EACH CIRCUIT WITH PHENOLIC PLASTIC LABEL TAGS IN ANY DEVICE THAT HAS ACCESS. THIS SHALL INCLUDE LIGHT POLES, PULL BOXES, PANELS, AND ETCETERA. PANEL, CIRCUIT NUMBER AND VOLTAGE SHALL BE IDENTIFIED. TAGS SHALL BE AFFIXED WITH NYLON ZIP-TIES.

SPECIFICATIONS

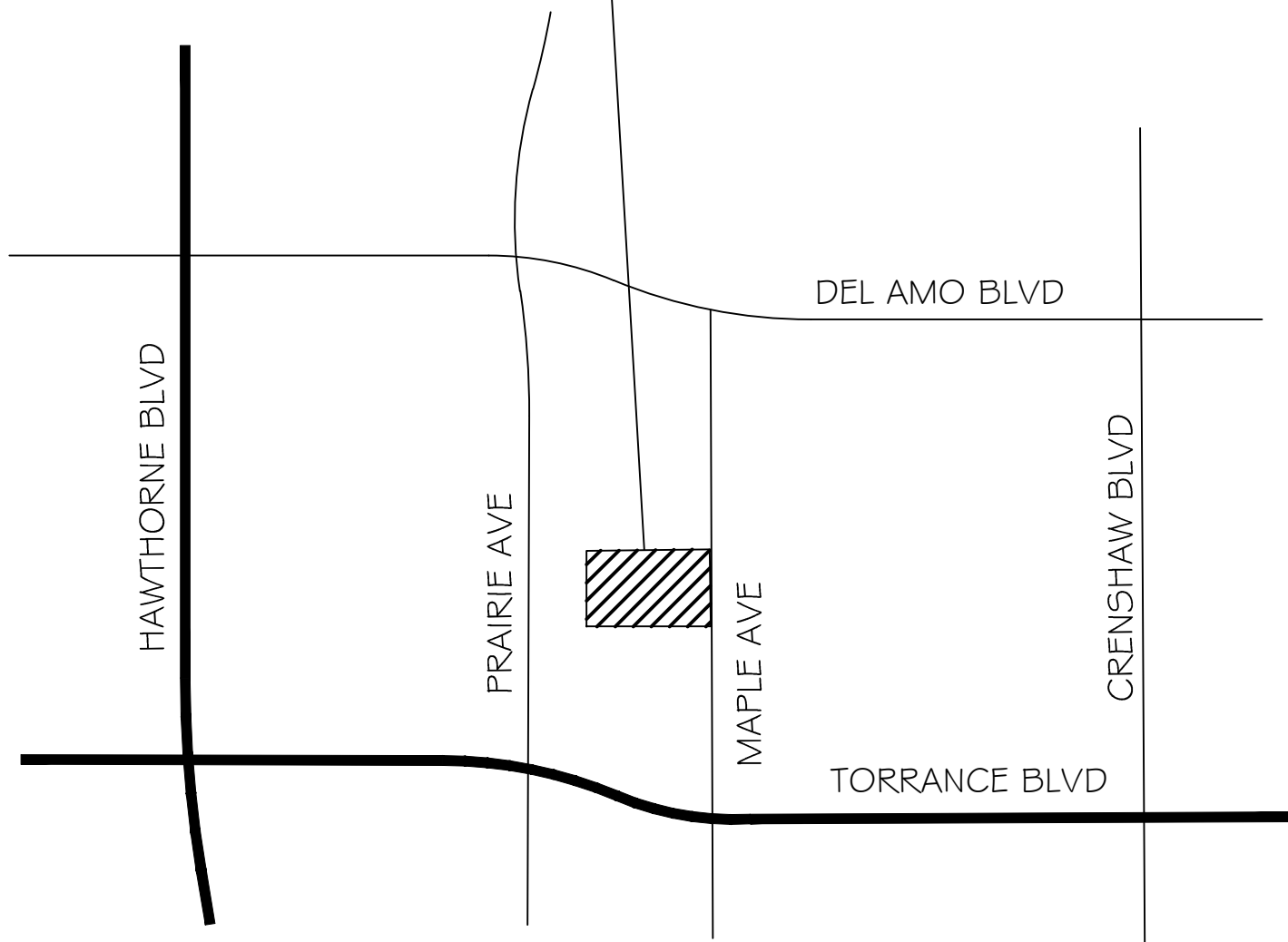
- ALL CONCRETE PULL BOXES TO BE TYPE 3-1/2 PB (10-1/2" X 17-1/2" X 12"D) WITH CONCRETE BOLT DOWN COVER MARKED "ELECTRICAL", BOX-C9EB, LID-C9R06). LEAVE 3" SLACK OF CONDUCTORS IN PULLBOX. SIZE PER SECTION 370-28, CEC.
- ALL BELOW GRADE ROUND JUNCTION BOXES TO BE "NEW BASIS" MODEL SGA100010 (OR EQUAL) ROUND COMPOSITE PULLBOX WITH BOLT-DOWN LID MARKED "ELECTRICAL". SIZE PER SECTION 370-28, CEC.
- FUSE HOLDERS TO BE WATERPROOF AND UL LISTED.
- ALL CONDUIT BELOW GRADE TO BE MINIMUM 3/4" SCHEDULE 40 PVC.
- ALL SPLICES BELOW GRADE SHALL BE MADE IN APPROVED PULL BOXES AND SHALL BE WATERTIGHT. USE ONLY EPOXY ENCAPSULATED TYPE SM BAGS OR EQUAL.
- ALL BELOW GRADE CONDUIT SHALL BE SEALED UPON COMPLETION OF INSTALLATION.
- ALL ELECTRICIANS TO HAVE PROOF OF CALIFORNIA ELECTRICIANS CERTIFICATE/CREDENTIALS.
- ALL CONDUIT ABOVE GRADE TO BE MINIMUM 1/2" EMT.

LEGEND

- BELOW GRADE ELECTRICAL CONDUIT AND WIRE RUN. SEE PLANS FOR TYPE AND # OF WIRES.
- ABOVE GRADE ELECTRICAL CONDUIT AND WIRE RUN. SEE PLANS FOR TYPE AND # OF WIRES.
- EX. ELECTRICAL METER ROOM
- ROUND COMPOSITE UNDERGROUND PULLBOX. SEE SPEC. 1 AND DETAIL E/EL-5
- ABOVE GRADE JUNCTION BOX.
- CONCRETE UNDERGROUND PULLBOX. SEE SPEC. 1 AND DETAIL F/EL-5
- EX. LIGHT, POLE AND FOUNDATION TO BE REMOVED. POLE TO BE USED FOR RELOCATION
- EX. LIGHT TO BE REPLACED WITH TYPE 'A' AREA LIGHT. SEE LUMINAIRE SCHEDULE A/EL-1 AND DETAIL A/EL-5
- TYPE 'B' AREA LIGHT. SEE LUMINAIRE SCHEDULE A/EL-1 AND DETAIL A/EL-5
- TYPE 'C' AREA LIGHT. SEE LUMINAIRE SCHEDULE A/EL-1 AND DETAIL A/EL-5. ARROW INDICATE DIRECTION FOR MOUNTING.
- TYPE 'D' UP-LIGHT. SEE LUMINAIRE SCHEDULE A/EL-1 AND DETAIL B/EL-5
- TYPE 'E' BOLLARD. SEE LUMINAIRE SCHEDULE A/EL-1 AND DETAIL D/EL-5
- TYPE 'F' MONUMENT/WALL WASH LIGHT. SEE LUMINAIRE SCHEDULE A/EL-1 AND DETAIL H, I/EL-5
- EX. BASKETBALL COURT LIGHT
- EX. SPORTS FIELD LIGHT
- NEW MUSCO SPORTS FIELD LIGHT
- C-1,3

LETTER INDICATES PANEL AND NUMBERS INDICATE CIRCUIT POSITIONS.

PROJECT SITE



VICINITY MAP N.T.S.

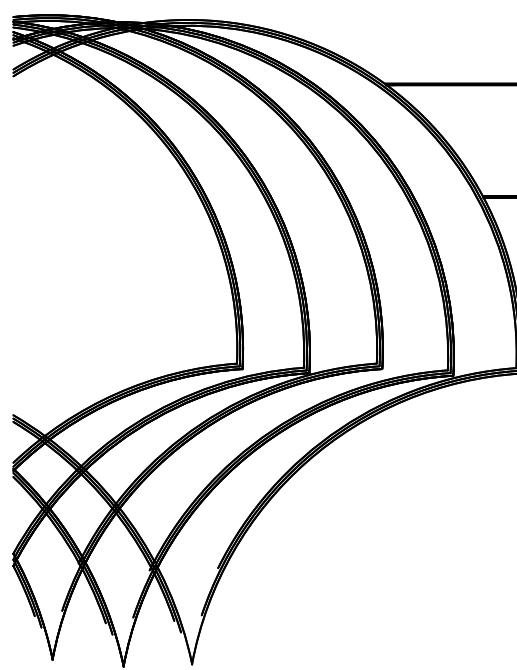
SHEET INDEX

SHEET #	DESCRIPTION
EL-1	COVER SHEET
EL-2	LIGHTING PLAN #1
EL-3	LIGHTING PLAN #2
EL-4	LIGHTING PLAN #3
EL-5	DETAILS, NOTES, SPECS, LEGEND, SCHEDULES

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MCMaster PARK - PHASE 1

Torrance, California

Landscape Plans

Tract #

City of Torrance
3031 Torrance Blvd.
Torrance, CA 90503
(310) 781-7339

LIGHTING PLAN #1



00-858-278-9503 FAX-858-278-9573
7207 800500 RD. SUITE E 1500 OROVILLO, CA 92051
WWW.VISUALCONCEPTS-INC.COM







project manager:
K. PEREZ SR.

approved by:
M. NIEDERHAUS

drawn by:
K. PEREZ SR.

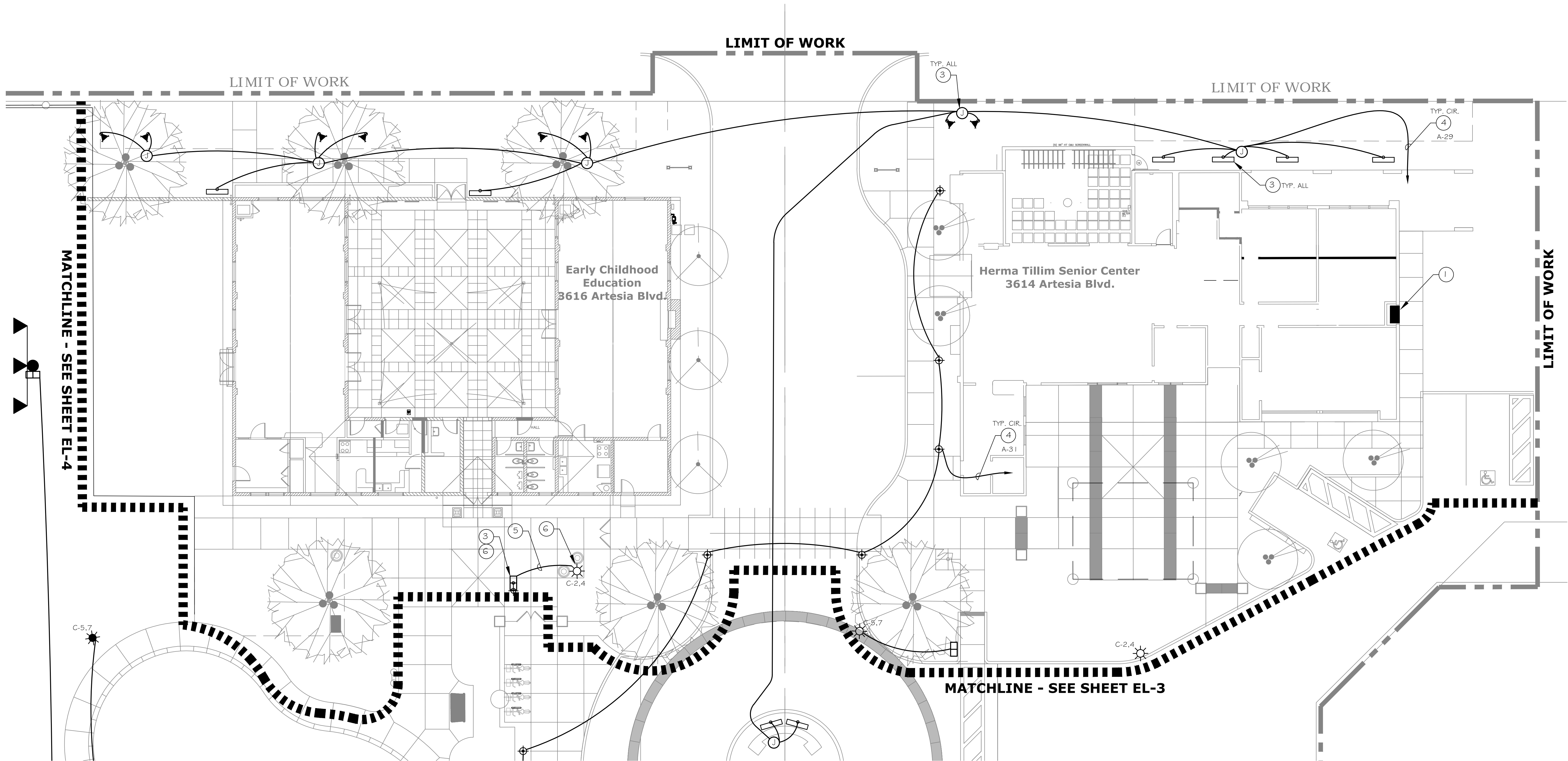
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10/21/13

scale:
1" = 10'-0"

LUMINAIRE SCHEDULE A																	
TYPE	SYMBOL		FIXTURE		VOLTS		LAMPS		MOUNTING				DESCRIPTION	MFR & CATALOG NO.			
			LUMENS	KELVIN	LED	120	240	NO.	TYPE	WATTS	WELL	SURF			SPECIAL	WALL	POLE
A	1		5194	4300				1	40 LED	70						AREA LIGHT-HEAD REPLACEMENT ONLY (DETAIL A/EL-5)	CREE-BETA LIGHTING ARE-EDR-5M-R3-04-D-UL-BZ-525-TL-43K (HEAD ONLY)
B	4		5194	4300					40 LED	70						AREA LIGHT-NEW LIGHT AND POLE (DETAIL A/EL-5)	CREE-BETA LIGHTING ARE-EDR-5M-R3-04-D-UL-BZ-525-TL-43K POLE-AMERON PGF-140-8
C	4		5127	4300					60 LED	102						AREA LIGHT-HEAD REPLACEMENT ONLY (DETAIL A/EL-5)	CREE-BETA LIGHTING ARE-EDR-3MB-R3-06-D-UL-BZ-525-TL-43K (HEAD ONLY)
D	8			3000				1	4 LED	24						TREE UP-LIGHT (DETAIL B/EL-5)	ILLUMITEX VL-50-4-BW-45-U-BZ
E	7		2000	4000				1	MULTI-LED	32						BOLLARD (DETAIL D/EL-5)	WAYNE TYLER 263LED32-32wLED-1 20V-A DOBE TAUPE-MEDIUM SAND BLAST
F	8		2000	3000				1	8 LED	50						MONUMENT/ WALL WASH LIGHT (DETAIL H, I/EL-4)	ILLUMITEX CX-1-24-4-3000-G-U-BZ

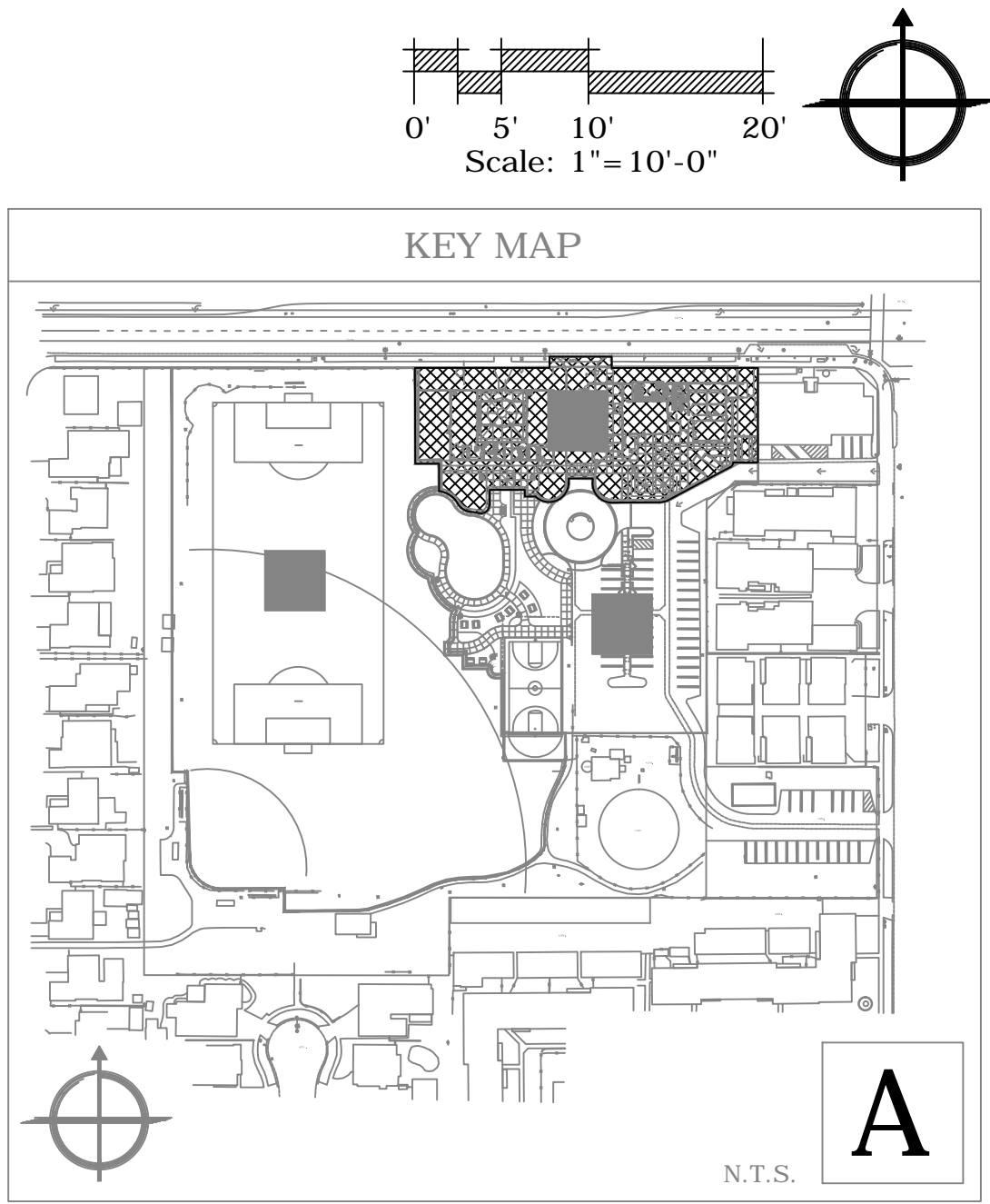
- A DISTRIBUTOR TO CONTACT JOHN FREESE OF SCI LIGHTING SALES FOR QUOTES ON ILLUMITEX FIXTURES FIXTURES. (858) 254-8771
- B DISTRIBUTOR TO CONTACT TOM BRINDLEY OF WESTERN ENERGY SOLUTIONS FOR QUOTES ON CREE/BETA FIXTURES. (702) 466-2120
- C DISTRIBUTOR TO CONTACT KATIE HALVERSON OF GRANT & ASSOCIATES FOR QUOTES ON WAYNE TYLER BOLLARDS. (858) 560-1070

LUMINAIRE SCHEDULE



PLAN NOTES

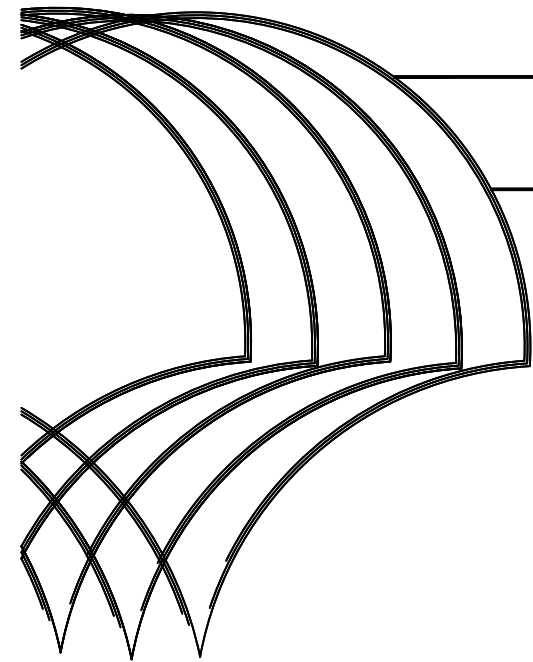
- 1 EX. ELECTRICAL/LIGHTING PANEL 'A'. VERIFY EXACT LOCATION. SEE PANEL SCHEDULE K/EL-5.
- 2 ROUND COMPOSITE UNDERGROUND PULLBOX. SEE SPEC. 2 AND DETAIL E/EL-5
- 3 UNDERGROUND PULLBOX. SEE SPEC. 1 AND DETAIL P/EL-5
- 4 1" C-2#10, 1#10 GND. BURY 24" BELOW GRADE. CONTRACTOR SHALL MAKE CONNECTION TO ELECTRICAL PANEL VIA PHOTOCELL, TIME-CLOCK AND LIGHTING CONTACTORS. CONTRACTOR TO PROVIDE NECESSARY THE AFOREMENTION AS WELL AS 1P, 20A BREAKER IN AVAILABLE PANEL POSITION AS REQUIRED AND NECESSARY.
- 5 PROVIDE 1" C-2#10, 1#10 GND. BURY 24" BELOW GRADE.
- 6 RELOCATED POLE. CONTRACTOR TO PROVIDE LUMINAIRE AND FOUNDATION ONLY. SHOULD THE POLE BE DAMAGED DURING REMOVAL, CONTRACTOR SHALL REPLACE WITH SAME.
- 7 EXISTING PEDESTRIAN LIGHT POLE. NEW TYPE 'A'. LUMINAIRE TO BE REPLACED. SEE LUMINAIRE SCHEDULE A/EL-1.
- 8 NEW PEDESTRIAN LIGHT POLE. NEW TYPE 'B'. SEE LUMINAIRE SCHEDULE A/EL-1.



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MCMMASTER PARK - PHASE 1

Torrance, California
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Tract #

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3031 Torrance Blvd.
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(310) 781-7339

LIGHTING
PLAN #1

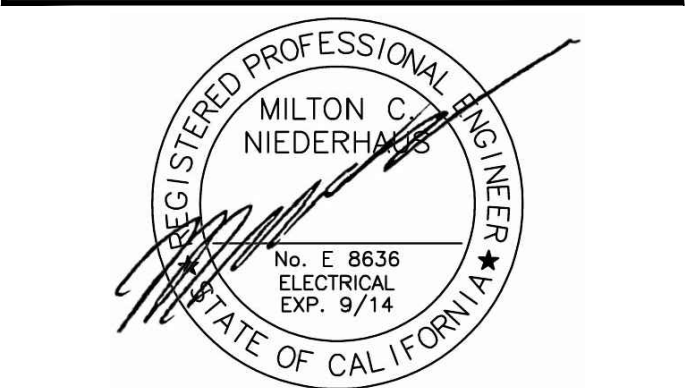


PH: 958-278-9583 FAX: 958-278-9573
7207 RIVERVIEW RD. SUITE 115 SAN DIEGO, CA 92121
WWW.VISUALCONCEPTS4NE.COM

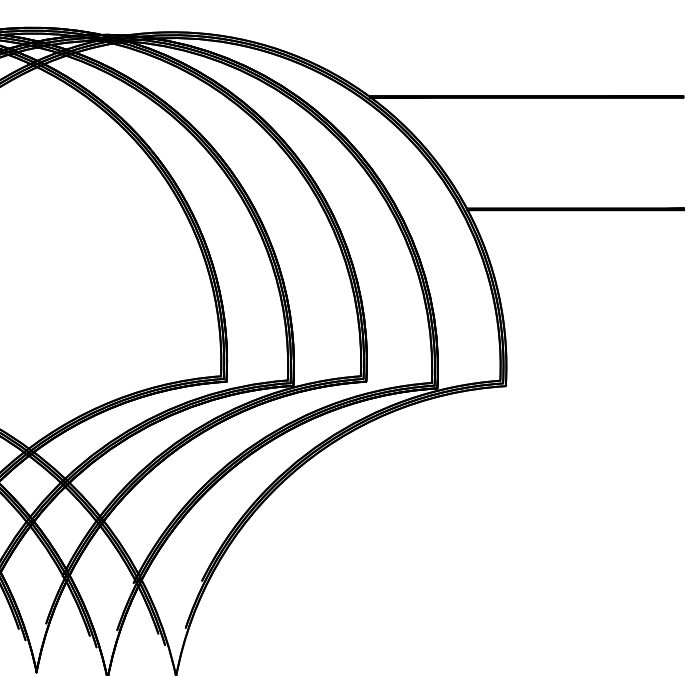
project manager:
K. PEREZ SR.
approved by:
M. NIEDERHAUS
drawn by:
K. PEREZ SR.
date:
10/21/13
scale:
1" = 10'-0"

S H E E T
2 of 5

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MCMaster Park - Phase 1

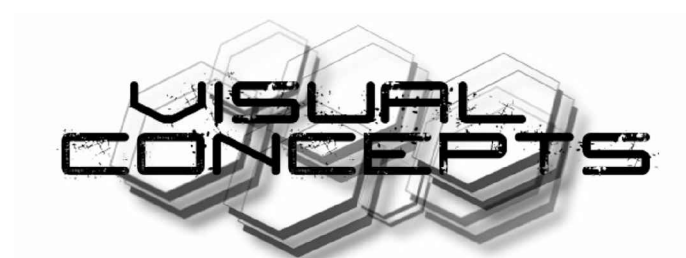
Torrance, California

Landscape Plans

Track #

City of Torrance
3031 Torrance Blvd.
Torrance, CA 90503
(310) 781-7559

LIGHTING PLAN #2



-PRODUCERS OF LIGHTING FUSION-

PH: 858-278-4503 FAX: 858-278-4573
7297 ROBINSON RD, SUITE C | SAN DIEGO, CA 92111
WWW.VISUALCONCEPTS-INC.COM

project manager:

K. PEREZ SR.

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M. NIEDERHAUS

drawn by:

P. Stevens

date:

10/21/13

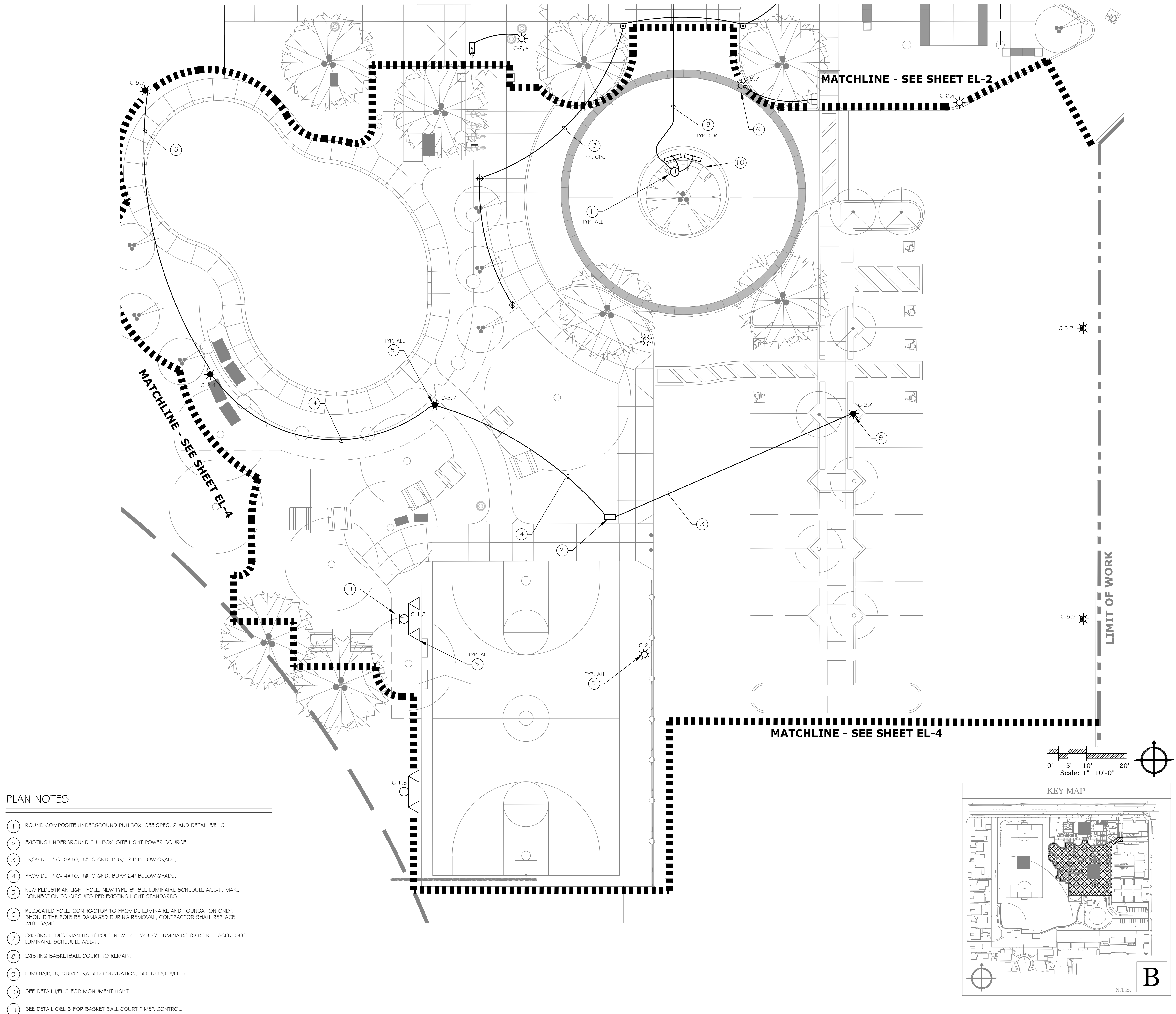
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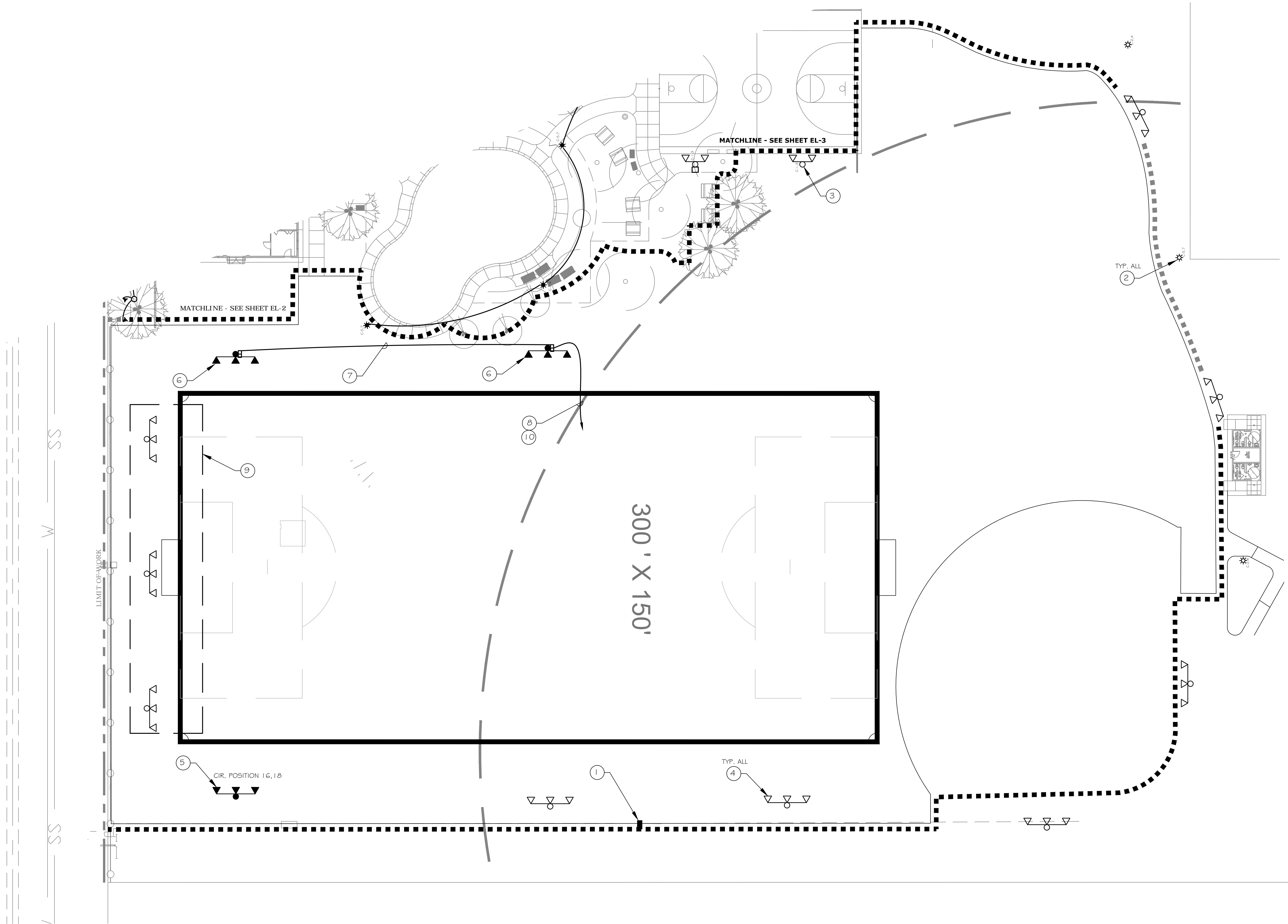
$$1'' = 10^{-6}''$$

S H E E T

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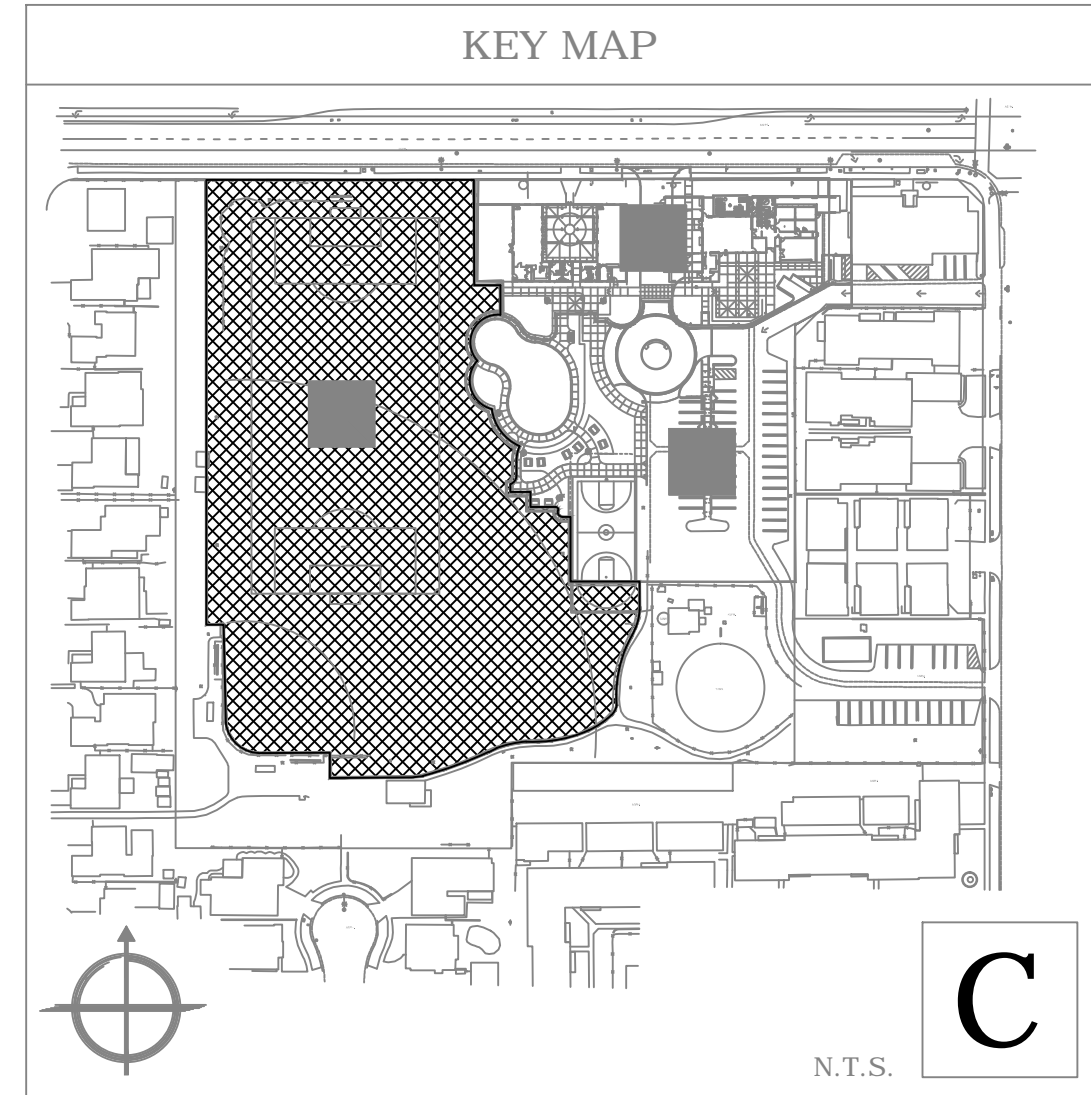
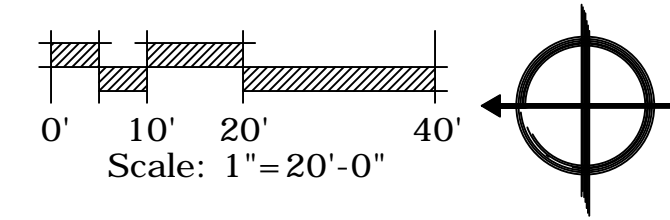
City of Torrance, McMaster Park - Phase I





PLAN NOTES

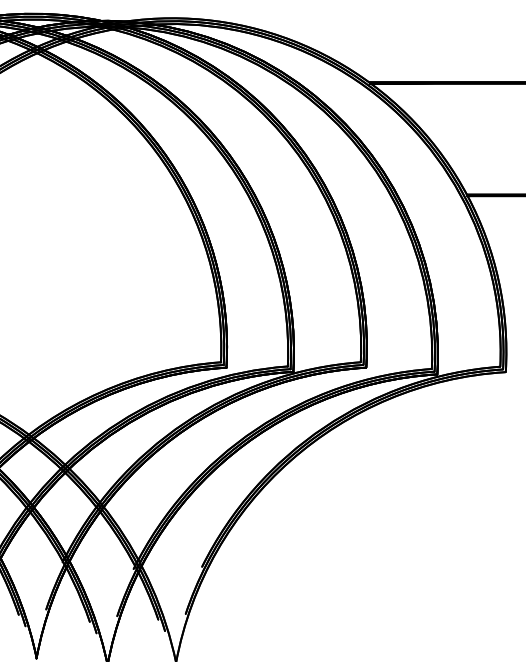
- 1 EX. ELECTRICAL/LIGHTING PANEL. VERIFY EXACT LOCATION.
- 2 EXISTING PEDESTRIAN LIGHT POLE. NEW TYPE 'A', LUMINAIRE TO BE REPLACED. SEE LUMINAIRE SCHEDULE AEL-1.
- 3 EXISTING BASKETBALL COURT TO REMAIN.
- 4 EXISTING MUSCO SPORTS LIGHT TO REMAIN UNLESS OTHERWISE DIRECTED.
- 5 REMOVE EXISTING LIGHT POLE AND INSTALL NEW MUSCO SPORTS LIGHT. RECONNECT TO EXISTING 40A, 2P CIRCUIT BREAKER IN POSITIONS 16, 18 VIA MUSCO LIGHTING CONTROL CABINET.
- 6 NEW MUSCO SPORTS FIELD LIGHT.
- 7 PROVIDE 1' C-2#8, 1#10 GND. BURY 24' BELOW GRADE.
- 8 PROVIDE 1 1/2' C-4#8, 1#10 GND. BURY 24' BELOW GRADE.
- 9 REMOVE (3) EXISTING SPORTS LIGHTS. REMOVE ELECTRICAL WIRING. SPARE CIRCUIT POSITIONS.
- 10 CONNECT NEW SPORTS FIELD LIGHTS TO CIRCUIT POSITIONS XX AND XX. INSTALL NEW XXA, 2P BREAKER IN EACH POSITION AND CONNECT THRU MUSCO CONTROL CABINET.



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MCMMASTER PARK - PHASE 1

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3031 Torrance Blvd.
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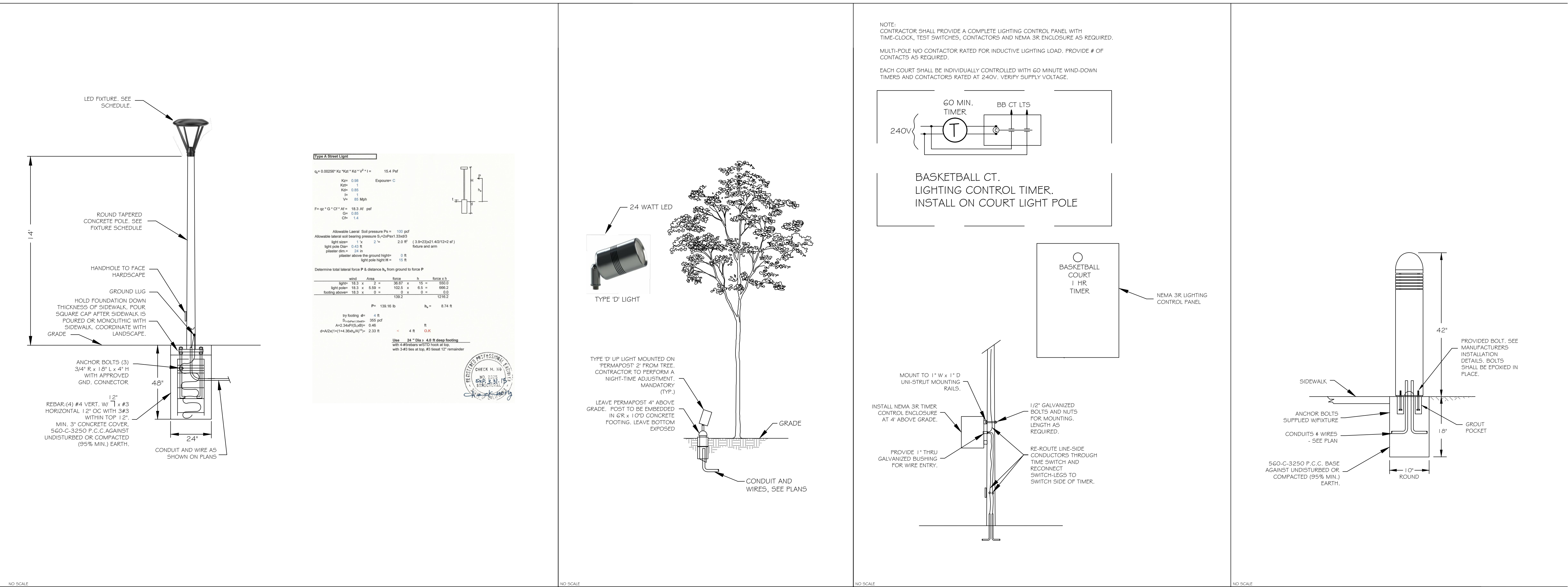
LIGHTING
PLAN #3



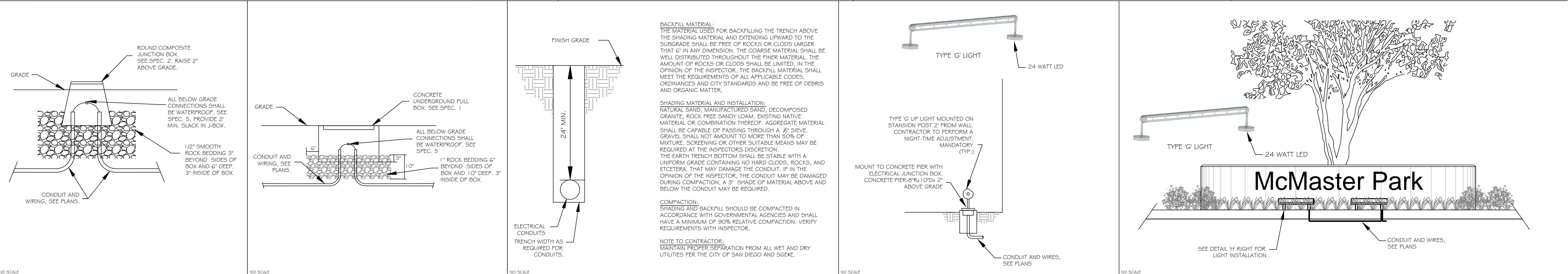
project manager:
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approved by:
M. NIEDERHAUS
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P. Stevens
date:
10/21/13
scale:
1" = 20'-0"

S H E E T
4 of 5

City of Torrance, McMaster Park - Phase 1



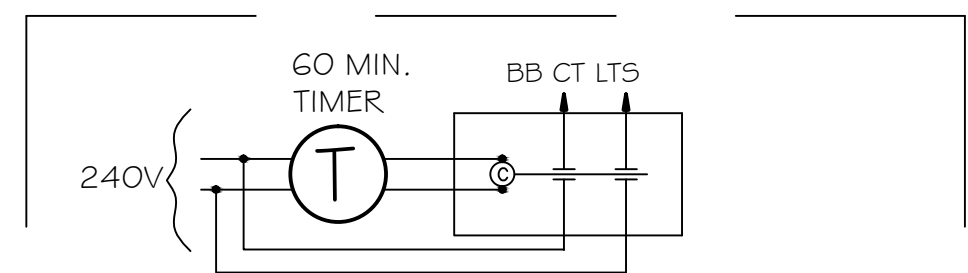
A TYPE 'A-C' AREA LIGHT INSTALLATION DETAIL
B TYPE 'D' TREE UP-LIGHT INSTALLATION DETAIL
C BASKET BALL CT TIMER CONTROL INSTALLATION DETAIL
D TYPE 'F' BOLLARD LIGHT INSTALLATION DETAIL



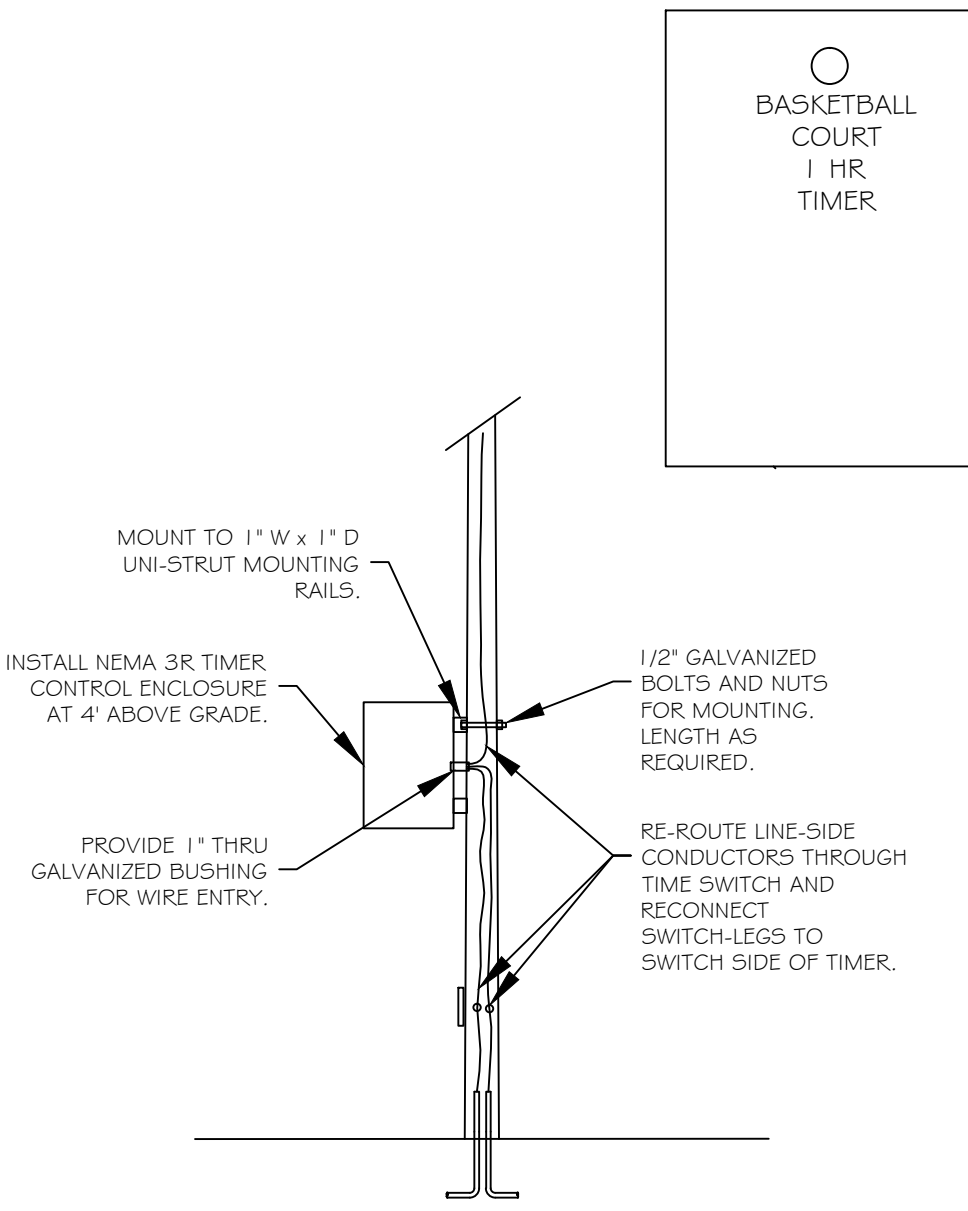
E BELOW GRADE JUNCTION BOX INSTALLATION DETAIL
F PULL BOX INSTALLATION DETAIL
G TRENCH AND CONDUIT INSTALLATION DETAIL
H TYPE 'G' WALL WASH LIGHT INSTALLATION DETAIL
I TYPE 'G' MONUMENT LIGHT INSTALLATION DETAIL

MOUNTING: SURFACE										EX. PANEL C										LOCATION: MAINT. BLDG									
VOLTAGE: 120/240										WIRE: 3										AIC SYM: 10,000									
PHASE: 1										WATTAGE										LOCATION									
										ØA ØB																			
EX. COURT LTG										900										EX. SEC. CIR. A									
										382										EX. PC/TC									
										382										EX. SPARE									
SPACE										9 A 10										SPACE									
SPACE										11 B 12										SPACE									
SPACE										13 A 14										SPACE									
SPACE										15 B 16										SPACE									
SPACE										17 A 18										SPACE									
SPACE										19 B 20										SPACE									
SPACE										21 A 22										SPACE									
SPACE										23 B 24										SPACE									
1282										WATTS/LINE										565 565									
TOTAL ØA: 1847 WATTS										TOTAL WATTS: 3694										BREAKERS SHALL BE SERIES									
TOTAL ØB: 1847 WATTS										PANEL AMPS: 15.4										RATED AND MARKED									
										HIGH PHASE LCL AMPS: 19.2										ACCORDING TO NEC.									
NOTE: CIR. 2,4 CONTROLLED BY PHOTOCELL. CIR. 1,3,5,7 CONTROLLED BY TIME CLOCK.																													
NOTE:																													
CIRCUIT 1,3 AND 5,7 SECURITY LIGHTS ARE BEING REPLACED WITH ENERGY EFFICIENT LED LUMENAIRES. THE																													
ADDITIONAL LOAD FOR THOSE 2 CIRCUITS WAS 3750. THE NEW LOAD FOR THE REPLACEMENT HEADS AND																													
ADDITIONAL LIGHTS IS 1534 WATTS. THIS EQUALS A TOTAL DECREASE IN LOAD FOR THOSE 2 CIRCUITS OFF																													
221.6 WATTS.																													
1										EXISTING PANEL C SCHEDULE-																			
										SITE LIGHTING																			
K										EXISTING PANEL C SCHEDULE-																			
										SITE LIGHTING																			

NOTE:
CONTRACTOR SHALL PROVIDE A COMPLETE LIGHTING CONTROL PANEL WITH TIME-CLOCK, TEST SWITCHES, CONTACTORS AND NEMA 3R ENCLOSURE AS REQUIRED.
MULTI-POLE NO CONTACTOR RATED FOR INDUCTIVE LIGHTING LOAD. PROVIDE # OF CONTACTS AS REQUIRED.
EACH COURT SHALL BE INDIVIDUALLY CONTROLLED WITH 60 MINUTE WIND-DOWN TIMERS AND CONTACTORS RATED AT 240V. VERIFY SUPPLY VOLTAGE.



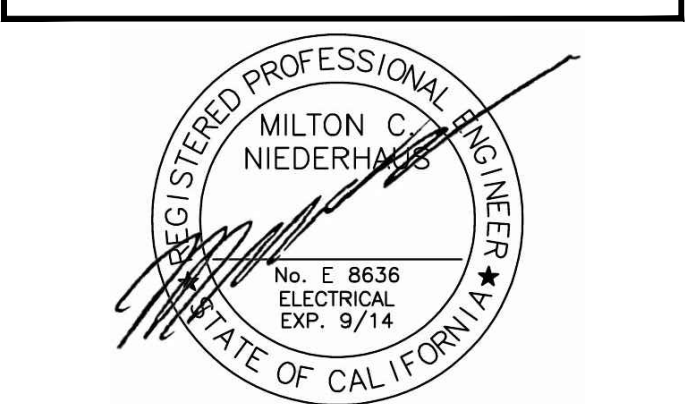
BASKETBALL CT.
LIGHTING CONTROL TIMER.
INSTALL ON COURT LIGHT POLE



BASKETBALL COURT
1 HR
TIMER

NEMA 3R LIGHTING CONTROL PANEL

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MCMMASTER PARK - PHASE 1

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SPECS, LEGEND, NOTES
DETAILS



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M. NIEDERHAUS
drawn by:
P. Stevens
date:
10/21/13
scale:
N/A

S H E E T
5 of 5